

REMARKS

Claims 1, 20, and 24 have been amended. Claims 1-40 remain in the application.

Claims 1, 3, 5, 8, 10, and 13-16 stand rejected under 35 U.S.C. §102(b) as being anticipated by Gambino et al. (6,081,021). The following claims stand rejected under 35 U.S.C. §103(a) as being unpatentable over various combinations and sub-combinations of references: Claim 2 over Gambino and Dixit (5,233,217); Claims 4, and 9 over Gambino and Zhao (5,674,787); Claims 6, 7, 12, 20, and 22-23 over Gambino and Lowrey (5,110,754); Claim 21 over Gambino, Lowrey and Dixit; Claims 11, and 17 over Gambino and Husher (5,171,715); Claims 18-19, 24-28, 31, 33, and 36-39 over Gambino and Wu (6,087,677); Claim 32 over Gambino, Wu and Zhao; Claims 30 and 35 over Gambino, Wu and Lowrey; Claims 34 and 40 over Gambino and Husher.

Regarding the anticipation rejection against claim 1 based on Gambino, such claim is amended to recite that a thickness of the isolation region is less than a thickness of the at least one of the first and second electrical nodes. Support for the amendments may be found at any of the Figures 1-7 of the specification as originally-filed.

Gambino merely discloses first and second interconnects 310 and 315 as being formed in dielectric layer 305. (See Gambino's Fig. 4). Even assuming for

argument purposes that Gambino's dielectric layer 305 isolates the first and second interconnects 310, 315, the thickness of the dielectric layer 305 is not less than the thickness of the first and second interconnects 310, 315.

Since Gambino fails to teach or suggest a positively recited limitation of claim 1, claim 1 is believed allowable.

Claims 2-19 depend from independent claim 1 and further limit the scope of claim 1 in a patentable sense. Since none of the references of record cure Gambino's deficiencies, claims 2-19 are believed allowable for the reasons discussed above with respect to the independent claim, as well as for their own recited features.

Independent claim 20 recites, in part, the first electrical node comprising a first-type dopant and the second electrical node comprising a second-type dopant different from the first-type dopant.

The Office Action, in section 6 on page 4, correctly acknowledges that Gambino fails to teach or suggest such recited element of claim 20. However, the Office Action asserts that Lowrey cures such deficiency. The Office Action alleges "Lowrey teaches the formation of an antifuse wherein the nodes comprise n-type and p-type regions (Fig. 13)." This rejection is respectfully traversed in view of the following:

Under MPEP 706.02(I) in order to establish a prima facie case of obviousness, (1) there must be some suggestion or motivation, either in the

references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings, (2) there must be a reasonable expectation of success, and (3) the prior art reference (or references when combined) must teach or suggest all of the claim limitations.

Lowrey fails to cure the deficiency of Gambino. Lowrey's col. 4, lines 33-45 disclose an antifuse element 121 having a lower conductive plate 81 and an upper conductive plate 111 with dielectric 91 separating the lower and upper conductive plates.

There is no teaching or suggestion within the references as to how diffusion regions 58, 55 of Lowrey should be combined with the structure of Gambino. Additionally, insufficient evidence has been provided as to why one of ordinary skill in the art would have been motivated to select the Lowrey and Gambino references and combine them. Moreover, there are no teachings in the references themselves regarding any advantages that would result by combining Lowrey with Gambino. As noted above, no evidence has been provided regarding any advantages that would have led one of ordinary skill in the art to combine Lowrey with Gambino. The mere fact that the references could possibly be somehow modified to result in the claimed invention does not render the claimed invention obvious unless there is a teaching in the references themselves or suggestions to motivate one of ordinary skill in the art to perform the desired

modification. No such teachings or suggestion appear to exist in the instant case and no such evidence has been provided by the Examiner.

Furthermore, there appears to be no logical reason for one of ordinary skill in the art to combine the diffusion regions of Lowrey with the metallic interconnect structure of Gambino. For example, Gambino's col. 4, lines 49-53 discloses that first and second conductive interconnects 310, 315 comprise Aluminum, Tungsten, TiN, etc. Since Gambino's interconnects 310, 315 are metallic as demonstrated above, it would not make sense that one of ordinary skill in the art would further provide such metallic interconnects with doped diffusion regions. Moreover, there is no teaching in Gambino in support thereof.

In view of the above, claim 20 is believed allowable over the prior art of record.

Claims 21-23 which depend from independent claim 20 further limit the scope of claim 20 in a patentable sense. Since other references of record fail to cure deficiencies of the combination of Gambino and Lowrey, claims 21-23 are believed allowable for reasons discussed above at independent claim 20 as well as for their own recited features.

Amended independent claim 24 recites, in part, forming at least one isolation region laterally adjacent at least one of the first and second electrical nodes, the isolation region having a thickness that is less than a thickness of the at least one of the first and second electrical nodes. Claim 24 is allowable at least for reasons

set forth above at claim 1 in addition to its own recited features. The combination of Gambino and Wu fails to teach or suggest forming at least one isolation region laterally adjacent at least one of the first and second electrical nodes, the isolation region having a thickness that is less than a thickness of the at least one of the first and second electrical nodes. Claim 24 patentably distinguishes over the combination of Gambino and Wu and is therefore allowable.

Claims 25-40 which depend from claim 24 further limit the scope of claim 24 in a patentable sense. None of the references of record, taken in any combination, teach or suggest the above-recited feature of claim 24. Accordingly, claims 25-40 are believed allowable at least for reasons set forth above at claim 24 in addition to their respective recited claim features.

This application is now believed to be in immediate condition for allowance, and action to that end is respectfully requested. If the Examiner's next anticipated action is to be anything other than a Notice of Allowance, the undersigned respectfully requests a telephone interview prior to issuance of any such subsequent action.

Respectfully submitted,

Dated: November 25, 2003

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